

ABSTRACT

A high-pressure probe insertion and retraction apparatus that is self contained in that it does not require additional tools to complete the insertion and retraction process. A conveyance tube is used to convey the probe into a high-pressure vessel or flowline, thereby allowing transmission of chemicals, pneumatic signals, and electronic signals, in addition to conveyance of traditional probes that do not require this transmission capability. The design of the apparatus allows the insertion and retraction process to be completed without rotation of the conveyance tube or probe, and provides the added benefit of a positive upward force for retraction of the probe when the conveyance tube has been fouled or bent during exposure to fluids within the high-pressure vessel or flowline. The apparatus further provides a positive locking mechanism to allow insertion to a variety of insertion depths with the ability to lock the apparatus at each specific depth of insertion. The apparatus further provides dedicated probes designed specifically for the functionality of the apparatus and offering improved performance, which are interchangeable, and allow a single apparatus to be used sequentially through a variety of applications that would require several apparatus's using current technology.